

April 11, 1967

Dr. Orr E. Reynolds, Director
Bioscience Programs
Office of Space Sciences and Applications
National Aeronautics and Space Administration
Washington, D. C. 20546

Dear Orr:

I was reflecting lately on the world food problem and found what might be an interesting intersection between this and NASA's biological research interests. I had in mind that especially in an emergency it might be of utmost importance to maximize the efficiency with which available nutrient was utilized by an astronaut, and there is a sense in which the whole earth is approaching such a crisis in the very near future. If we could gain a factor of 2 in metabolic efficiency, it might just give us the necessary lead time to be able to cope with the whole problem. What I had in mind is the use of antibiotics as food supplements, which has been quite markedly successful in animal nutrition. This is in somewhat bad odor now because of some possibly hysterical concerns about the development of resistant organisms. The most I could find about the subject appears in a couple of pages in an antibiotics monograph, "Antibiotics and Nutrition" by Tom Jukes. But this just doesn't seem to be what he is interested in at the present time.

Do you know of any work along these lines going on at the present time under NASA sponsorship?

A further elaboration that I think there used to be some talk about some years ago would be the identification of specific antibiotic-resistant strains of enteric bacteria, selected so as to have the most favorable effect on the nutrition of the host. This is going back to Metchnikov, but we might have a more scientific basis of establishing and evaluating implanted strains than he did.

Sincerely yours,

Joshua Lederberg
Professor of Genetics

REYNOLDS, Orr